

Attorney Docket No.: 0140105

**REMARKS**

Reconsideration and allowance of pending claims 1-20 in view of the following remarks are requested.

**A. Rejections of Claims 1-20 under 35 USC §102(b)**

The Examiner has rejected claims 1-20 under 35 USC §102(b) as being anticipated by U.S. Patent No. 6,404,289 to Su et al. (hereinafter "Su"). For the reasons discussed below, Applicants respectfully submit that the present invention, as defined by the independent claims 1, 9 and 17, is patentably distinguishable over Su.

The present invention, as defined by independent claims 1, 9 and 17, includes, among other things, coarse tuning circuit 302 (See Figure 3 of the present application) coupled to voltage controlled oscillator 300, where coarse tuning circuit 302 is further coupled to phase locked loop 336, which is in turn connected to loop filter 338 where loop filter 338 generates a fine tuning voltage (VTUNE 350) for use by voltage controlled oscillator 300. Coarse tuning circuit 302 includes lock detect monitoring circuit 304 which detects the state of phase locked loop 336 and provides this state information to autotuner circuit 308 inside coarse tuning circuit 302. VTUNE monitoring circuit 306 monitors an output of loop filter 338 and provides fine tuning information to autotuner circuit 308. Autotuner circuit 308 can then provide coarse tuning information to voltage controlled oscillator 300.

Attorney Docket No.: 0140105

Moreover, an important feature of autotuner circuit 308 is that it can determine whether the magnitude of VTUNE 350 is greater than a high threshold for VTUNE ( $VTUNE_H$  214) or less than a low threshold for VTUNE ( $VTUNE_L$  216) and efficiently select a particular coarse tuning value where VTUNE remains between  $VTUNE_H$  and  $VTUNE_L$ . For example, in a case where autotuner circuit 308 selects the coarse tuning value associated with curve 202b (see Figure 2 of the present application), the magnitude of VTUNE 350 will be increased by loop filter 338 in order to match the target oscillation frequency  $f_0$ . If VTUNE 350 is increased beyond  $VTUNE_H$  214, autotuner circuit 308 will adjust the capacitive value of the tank circuit by decreasing the coarse tuning value and thus, will select the coarse tuning value associated with curve 202c. See, for example, present application, page 15, lines 19-21 to page 16, lines 1-7.

In addition, if VTUNE 350 is decreased such that its magnitude falls below  $VTUNE_L$  216 (for example, in the case where the coarse tuning value is set in association with curve 202d), autotuner circuit 308 will *increase* the coarse tuning value and thus, will select the coarse tuning value associated with curve 202c. See, for example, present application, page 16, lines 10-19. Therefore, the ability of the autotuner circuit 308 to increase or decrease coarse tuning values based on the magnitude of VTUNE 350 allows the coarse tuning circuit disclosed in the present application to achieve a high level of efficiency.

In contrast, the disclosure in Su, as depicted by Figure 6A, utilizes a different structure and method of coarse tuning than that disclosed in the present application. In

Attorney Docket No.: 0140105

Su, an initial lock is obtained by setting the capacitor register so that the circuit has the highest capacitance associated with it (see, for example, Su, column 6, lines 56-60), thus beginning the tuning process with the highest possible curve and gradually lowering the capacitance until a lock is established (see Su, Figure 6A, steps 612, 614 and 616). Therefore, the method, and consequently the structure, of the present invention are patentably distinguishable over those disclosed in Su.

For the foregoing reasons, Applicants respectfully submit that the present invention as defined by independent claims 1, 9, and 17 is not taught, disclosed, or suggested by the art of record. Thus, independent claims 1, 9, and 17 are patentably distinguishable over the art of record. As such, the claims depending from independent claims 1, 9, and 17 are, *a fortiori*, also patentable for at least the reasons presented above and also for additional limitations contained in each dependent claim.

#### **B. Conclusion**

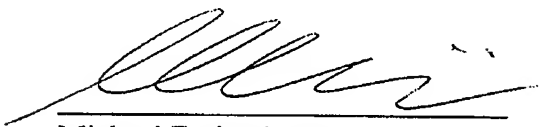
Based on the foregoing reasons, the present invention, as defined by independent claims 1, 9, and 17, and the claims depending therefrom, is patentably distinguishable over the art cited by the Examiner. Thus, outstanding claims 1-20 are patentably distinguishable over the art cited by the Examiner. As such, and for all the foregoing reasons, an early Notice of Allowance directed to all claims 1-20 remaining in the present application is respectfully requested.

Attorney Docket No.: 0140105

Respectfully Submitted,  
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